

IN THE CLAIMS:

Please cancel claim 26 without prejudice and add new claims 27-44 as set forth below.

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27. (New) In an optical detection system housing a coherent light source for illuminating a surface, and an optical sensing assembly comprising a photosensitive array and a plurality of optical elements, a method for detecting movement comprising:
- generating an illumination spot on the surface by lighting the surface with a coherent light beam from the coherent light source, the illumination spot diffusely reflected off the surface;
 - arranging the plurality of optical elements to pass a diffusely reflected image of the illumination spot through each optical element onto the photosensor array, the photosensor array having a plurality of pixels, the diffusely reflected image from at least two optical elements overlapping on a pixel to form an overlapped image; and
 - generating an unambiguous image data signal from the photosensor array in response to the overlapped image on the pixel.
28. (New) The method of claim 27 wherein the overlapped image includes a speckle.
29. (New) The method of claim 28 wherein the size of the speckle in the overlapped image is greater than an area of the pixel.
30. (New) The method of claim 27 wherein at least one optical element includes an anisotropic, artificially limited aperture optically matched to the photosensitive array to pass the diffusely reflected image of the illumination spot through the optical element onto the photosensor array.

31. (New) The method of claim 27 further comprising the step of configuring the photosensor array to be sensitive to a movement in the overlapped image in two orthogonal directions.

32. (New) The method of claim 27 wherein the plurality of optical elements includes at least three lenses.

33. (New) The method of claim 27 wherein the plurality of optical elements includes a plurality lenses, at least one lens having a unique set of optical properties with respect to the remaining lenses.

34. (New) The method of claim 27 further comprising the step of determining movement based on a change in the unambiguous image data signal.

35. (New) The method of claim 27 wherein the photosensitive array comprises a plurality of pixels.

36. (New) In an optical detection system housing a coherent light source for illuminating a surface, and an optical sensing assembly comprising a photosensitive array and a plurality of optical elements, an apparatus for detecting movement comprising:

a means for generating an illumination spot on the surface by lighting the surface with a coherent light beam from the coherent light source, the illumination spot diffusely reflected off the surface;

a means for arranging the plurality of optical elements to pass a diffusely reflected image of the illumination spot through each optical element onto the photosensor array, the photosensor array having a plurality of pixels, the diffusely reflected image from at least two optical elements overlapping on a pixel to form an overlapped image; and

a means for generating an unambiguous image data signal from the photosensor array in response to the overlapped image on the pixel.

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37. (New) The apparatus of claim 36 wherein the means for generating an illumination spot comprises a laser diode.

38. (New) The apparatus of claim 36 wherein the means for arranging the plurality of optical elements comprises a microlens array.

39. (New) The apparatus of claim 36 wherein the means for generating an unambiguous image data signal comprises a serial output charge couple device.

40. (New) The apparatus of claim 36 wherein the overlapped image includes a speckle.

41. (New) The apparatus of claim 36 further comprising a means for configuring the photosensor array to be sensitive to a movement in the overlapped image in two orthogonal directions.

42. (New) The apparatus of claim 41 wherein the means for configuring the photosensor array comprises the pixel and a plurality of additional pixels arranged together in a two dimensional array.

43. (New) The apparatus of claim 36 further comprising a means for determining movement based on a change in the unambiguous image data signal.

44. (New) The apparatus of claim 43 wherein the means for determining movement is a cross correlation module.
